IN THE SPECIFICATION:

Please replace paragraph 13 (on page 4 of the written description) with the following paragraph:

[0013] The effects of ESS therapy may advantageously benefit a large number of patients suffering from cardiac mechanical insufficiency, such as patients in HF, including congestive heart failure (collectively herein, "HF"). A need remains therefore for a clinically safe method for delivering an ESS therapy that achieves the mechanical benefits of ESS therapy while avoiding the risk of arrhythmias, particularly during ischemic episodes. In other cases, it may be desirable to prevent an acute degradation in cardiac performance during an episode of ischemia. The present invention is directed toward combining ischemia monitoring with ESS capabilities in an implantable cardiac stimulation device wherein ESS delivery is controlled based on ischemia monitoring results. One objective of the present invention is to address the need for reducing the risk of arrhythmias and/or the potential for under-detection of arrhythmias during an ischemic episode whether or not attributable to or occurring during delivery of an ESS therapy. In one embodiment of the present invention, delivery of ESS therapy is disabled or ESS control parameters are modified in response to an initial affirmative myocardial ischemia detection. In another embodiment of the present invention, ESS therapy begins in response to detection of a myocardial ischemia condition as an attempt to adequately re-perfuse the myocardium. In this way, ESS therapy does not contribute to an increased risk of arrhythmias and, moreover, does not interfere with the reliable performance of arrhythmia detection functions during an ischemic episode.

In the Claims:

1. (Currently amended) A method for controlling extra systolic stimulation (ESS) therapy delivery, comprising the steps of:

detecting a myocardial ischemia condition; and

responding to the detected myocardial ischemia condition~~detection~~ by modifying the delivery of an ESS therapy.

2. (Currently amended) A method according to claim 1, wherein modifying the delivery of the ESS comprises any of:

disabling the ESS therapy delivery;

initiating the ESS therapy delivery;

modifying at least one ~~ESS~~ therapy delivery control parameter of the ESS therapy.

3. (Currently amended) A method according to claim 1, further comprising:

detecting the absence of myocardial ischemia subsequent to an initial affirmative ischemia detection; and

modifying the ESS therapy delivery.

4. (Currently amended) A method of adapting an extra-systolic stimulation (ESS) therapy delivery sequence in response to an ischemia monitor~~s~~ output signal, comprising:

monitoring ~~a volume of~~ myocardial tissue for a myocardial ischemic condition and providing an output signal related to a presence or an absence of a myocardial ischemia condition;

in the event that the output signal indicates the presence of the myocardial ischemic condition and an ESS therapy is presently being applied to the ~~volume of~~ myocardial tissue, at least temporarily ceasing further delivery of the ESS therapy; and

in the event that the output signal indicates the presence of the myocardial ischemic condition and the ESS therapy is not presently being applied to the ~~volume of~~ myocardial tissue, initiating delivery of the ESS therapy.

5. (Currently amended) A method according to claim 4, further comprising:

in the event that the output signal indicates the absence of the myocardial ischemic condition and ~~an~~the ESS therapy is presently being applied to the ~~volume of~~ myocardial tissue, then either:

continuing delivery of the ESS therapy, or

mode-switching to another cardiac stimulation therapy modality.

6. (Currently amended) A method according to claim 4, wherein the monitoring step further comprises:

determining a variation in:

a cardiac conduction interval from a pacing pulse delivery to a resultant depolarization over at least two different cardiac cycles,

a present sensor signal output compared to a prior sensor signal output, wherein said present sensor signal output and said prior sensor signal output is derived from ~~couples to a portion of myocardial tissue and comprises~~ one of: a mechanical sensor, a biological sensor, a metabolic sensor;

a variation in an S-T segment parameter~~s~~ relative to an isoelectric baseline parameter, or

a variation in a portion of a T-wave of a PQRST complex~~, using~~ via a cardiac electrogram signal vector means for determining at least one of an ~~the~~ onset, a presence and ~~or~~ an absence of an ischemia condition.

7. (Currently amended) A method according to claim 6, wherein the cardiac electrogram signal vector means includes ~~comprises~~ at least a one of: a tip-to-ring electrode vector, a coil-to-can electrode vector, a coil-to-coil electrode vector, a tip-to-can electrode vector, a ring-to-can electrode vector, a ring-to-ring vector.

8. (Currently amended) A method according to claim 7, wherein said method is performed via controls signals generated from ~~on~~ a computer readable medium disposed within and operatively coupled to an electronic circuit of an implantable pulse generator.

9. (Currently amended) A method according to claim 8, further comprising:
wirelessly transmitting the output signal to a remote device~~; and/or vibrating the implantable pulse generator in relation to a state change in the output signal~~.

10. (Currently amended) A method according to claim 9, ~~further comprising: displaying an indicia by or on~~ wherein the remote device couples to a clinician information network~~, wherein said indicia comprises a visual indicia related to the output signal~~.

11. (Currently amended) A computer readable medium for storing executable instructions for performing a method, comprising:
instructions for monitoring ~~a volume of~~ myocardial tissue for a myocardial ischemic condition and providing an output signal related to a presence or an absence of a myocardial ischemia condition;
in the event that the output signal indicates the presence of the myocardial ischemic condition and an ESS therapy is presently being applied to the ~~volume of~~ myocardial tissue, instructions for at least temporarily ceasing further delivery of the ESS therapy; and
in the event that the output signal indicates the presence of the myocardial ischemic condition and the ESS therapy is not presently being applied to the ~~volume of~~ myocardial tissue, instructions for initiating delivery of the ESS therapy.

12. (Currently amended) A method according to claim 11, further comprising:

in the event that the output signal indicates the absence of the myocardial ischemic condition and an ESS therapy is presently being applied to the ~~volume of~~ myocardial tissue, then either:

instructions for continuing delivery of the ESS therapy, or

instructions for mode-switching to another cardiac stimulation therapy modality.

13. (Original) A method according to claim 11, wherein the monitoring step further comprises:

instructions for determining:

a variation in a cardiac conduction interval from pacing pulse delivery to resultant depolarization over at least two different cardiac cycles,

a variation in a present sensor signal output compared to a prior sensor signal output, wherein said sensor couples to a portion of myocardial tissue and comprises one of: a mechanical sensor, a biological sensor, a metabolic sensor;

a variation in S-T segment parameters relative to an isoelectric baseline parameter, or

a variation in a portion of a T-wave of a PQRST complex,

wherein said variation is determined based upon a cardiac electrogram signal vector for determining the onset, presence or absence of an ischemia condition.

14. (Currently amended) A method according to claim 13, wherein the cardiac electrogram signal vector comprises at least a one of: a tip-to-ring electrode vector, a coil-to-can electrode vector, a coil-to-coil electrode vector, a tip-to-can electrode vector, a ring-to-can electrode vector, a ring-to-ring vector.

15. (Currently amended) A method according to claim 14, further comprising:

instructions for wirelessly transmitting the output signal to a remote device~~;~~
~~and/or~~
~~instructions for vibrating the implantable pulse generator in relation to a state change in the output signal~~.

16. (Currently amended) A method according to claim 15, ~~further comprising: instructions for displaying an indicia by or on~~ wherein the remote device comprises a programming device~~, wherein said indicia comprises a visual indicia related to the output signal~~.

17. (Original) A method according to claim 15, wherein said remote device is coupled to a clinician information network.

18. (Currently amended) An apparatus for providing an adaptable extra-systolic stimulation (ESS) therapy delivery sequence in response to an output signal from a myocardial ischemia monitor, comprising:

means for monitoring ~~a volume of~~ myocardial tissue for a myocardial ischemic condition and providing an output signal related to a presence or an absence of a myocardial ischemia condition;

means for, in the event that the output signal indicates the presence of the myocardial ischemic condition and an ESS therapy is presently being applied to the ~~volume of~~ myocardial tissue, at least temporarily ceasing further delivery of the ESS therapy; and

means for, in the event that the output signal indicates the presence of the myocardial ischemic condition and the ESS therapy is not presently being applied to the ~~volume of~~ myocardial tissue, initiating delivery of the ESS therapy.

19. (Currently amended) An apparatus according to claim 18, further comprising:

means for, in the event that the output signal indicates the absence of the myocardial ischemic condition and an ESS therapy is presently being applied to the ~~volume of~~ myocardial tissue, then either continuing delivery of the ESS therapy, or mode-switching to another cardiac stimulation therapy modality.

20. (Original) An apparatus according to claim 18, further comprising means for determining a variation in:

a cardiac conduction interval from pacing pulse delivery to resultant depolarization over at least two different cardiac cycles,

a present sensor signal output compared to a prior sensor signal output, wherein said sensor couples to a portion of myocardial tissue and comprises one of: a mechanical sensor, a biological sensor, a metabolic sensor;

a variation in S-T segment parameters relative to an isoelectric baseline parameter, or

a variation in a portion of a T-wave of a PQRST complex,

using a cardiac electrogram signal vector for determining the onset, presence or absence of an ischemia condition.

21. (Original) An apparatus according to claim 20, wherein the cardiac electrogram vector comprises at least a one of: a tip-to-ring electrode vector, a coil-to-can electrode vector, a coil-to-coil electrode vector, a tip-to-can electrode vector, a ring-to-can electrode vector, a ring-to-ring vector.

22. (Currently amended) An apparatus according to claim 21, further comprising:

means for wirelessly transmitting the output signal to a remote device~~; or~~
~~means for vibrating the implantable pulse generator in relation to a state change in the output signal~~.

23. (Currently amended) An apparatus according to claim 22, ~~further comprising:~~

~~means for displaying an indicia by or on~~wherein the remote device comprises a programming device~~, wherein said indicia comprises a visual indicia related to the output signal~~.

24. (Original) An apparatus according to claim 22, wherein said remote device is coupled to a clinician information network.